

Commentary

Al-Kindi—Physician, Philosopher, and Savant Seven Centuries Before the Renaissance

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Physicians have made important contributions not only to medicine but to other areas of human endeavor and culture. Perhaps no physician provides a more dramatic example of this than the Arab physician, Abu Yusuf Ya'qub Ibn Ishaq al-Kindi, usually identified as al-Kindi. Despite his unusual contributions to many fields of human endeavor, he remains virtually unknown to western medicine.

The exact dates of al-Kindi's birth and death are not recorded, but he lived in the ninth century AD (western calendar), third century AH (after the Hegira-Islamic calendar). He was born of noble descent in Basra, a southern Iraqi city on the Persian Gulf. Most of his adult life was spent in Baghdad. A number of his writings have been lost over the last millennium, but the remaining works show an amazing range of interests and a high degree of productivity.

Our essay was compiled from secondary sources because the original sources are difficult to locate—neither of us is familiar with the Arabic language, and translations are rare. For example, al-Kindi's studies on drugs and drug interactions and his treatment of cost-benefit analysis are completely modern.

In addition to general philosophy and medicine, al-Kindi contributed to our knowledge of metaphysics, psychology and its application to psychotherapy, astronomy, astrology, cosmology, optics, perfume distillation, music and its use as a psychotherapeutic tool, implements, including the manufacture of swords, scientific instruments, musical instruments, especially the lute, pharmacology, geography, chemistry, gemology, literature, zoology, sociology, and mathematics.

Given the scope of al-Kindi's surviving writings, it is tempting to consider him a dilettante, flitting from interest to interest at a superficial level. But he was not. He pursued his many disciplines with a depth and a degree of specificity that indicated both profound involvement and studious attention to detail.

For example, his writings on optics are still regarded as important and surprisingly modern contributions to the theories of vision. It has been speculated that his interest in eyesight stemmed from the high prevalence of eye disease in that area of the world—trachoma, for example, is still a common cause of blindness in much of the Middle East.

The list of al-Kindi's areas of proficiency establishes another aspect of his work—the application of technology to medicine. The process of perfume distillation and manufacture is not very different from the preparation of medicinals. An expert in the manufacture of swords might use this knowledge in fabricating surgical instruments.

We know al-Kindi applied many of these technological methods to medicine. He was an early contributor to the flood of technical applications that now so deeply affect medical practice.

His contributions to music included not only general material, but also a volume on string instruments and treatises on the composition of a melody and the manufacture of a lute. He was an ardent experimentalist centuries before formal experiments were known in the western world, as illustrated by these quotations: "This could be easily explained by observing an experiment to illustrate it. Take a bottle . . ." and "We tried because carrying out an experiment was quite possible, and we believe that when a statement is based on an experiment that can be sensed, that it cannot be discredited except by proof that it does not happen. Therefore, we have made our own projectile to carry on an experiment."

He was an early advocate of applying international standards to the search for truth: "We should not be ashamed to acknowledge truth from whatever source it comes to us, even if it is brought to us by former generations and foreign peoples. For him who seeks the truth . . . there is nothing of higher value than the truth itself."

We are, of course, primarily interested in his contributions as a physician. His writings embraced virtually all branches of human knowledge in medieval times, and he was able to apply his encyclopedic knowledge to medicine.

This list of his published works on medicine illustrates the range of his medical interests.

On Hippocratic Medicine (al-Kindi was an avid student of Greek philosophy and medicine)

On Virulent Drugs

On Vapors Which Ameliorate the Atmosphere From Plague

On Drugs Which Heal From Harmful Odors

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†Dr Notkin died November 18, 1994. This communication is a memorial to him.

On Illness Which Produces Blood Spitting
On Antidotes
On Preservation of Health (Was he a forerunner of advocates of preventive medicine?)
On the Delirium of Acute Disease
On the Soul of the Body's Major Organ (the brain)
On the Brain
On Leprosy and Its Treatment
On Mad Dog Bites
On Symptoms Resulting From Phlegm and the Cause of Sudden Death
On Stomachache and Gout
On Kinds of Fever
On Medical Treatment of Morbid Hardening of the Spleen
On Decomposed Animal Bodies
On Recognizing the Great Value of the Healing Art
On Food Made of Substitute Ingredients
On Adulteration of Food
An Introduction to the Healing Arts

One of al-Kindi's most valuable contributions to medicine was his formulary, which is notable not only for its broad range of drugs, but also because he explicitly recognized his limitations of knowledge. Almost all his formulations end with statements like "It (the mixture) is efficacious if God wishes." Such comments must be tempered by the fact that al-Kindi was a devout Moslem. Moslems believe that God (Allah) decides all things. *Insh' Allah* ("God willing") is customarily invoked at the end of the most simplistic discussion of the future. For example: "I will meet you tomorrow, *Insh' Allah*."

In a modern fashion, al-Kindi explicitly recognized the importance of drug interactions, but chiefly from the standpoint of benefits rather than risks: "Greek physicians discussed the faculties and qualities of simple drugs only. But they failed to do so in regard to compound medications which appear even more significant."

Given the broad range of his interests in medicine, it is not surprising that he anticipated cost-benefit analysis:

If, in seeking to be healed from diseases of the body, we bear the bitterness of medications, the suffering of cauterization and surgery [al-Kindi was no surgeon] and be willing to spend large sums of money for medical care. . . [An early attempt at health care reform?]

We know little of his specific activities as a clinician, although he was directly involved in patient care. One of his surviving works is a letter to a patient. He presumably used the medical school in Baghdad as an operational base. Eleven centuries before the Flexner Report, Arab medical schools apparently used the bedside manner of teaching. We can assume that al-Kindi was a master bedside teacher.

It is interesting to note that today's formal western medical literature contains only two paragraphs summarizing his medical contributions (M. A. Shampo, R. A. Kyle, "Yusuf Ibn Al-Kindi," *Journal of the American Medical Association* 1975; 234:165). Few standard medical history books even mention him, although his work appears to have influenced the development of modern medicine. Al-Kindi's works provide a number of lessons. Genius knows no geographic, ethnic, or political boundaries. It flows from some genetic and environmental mixture that may be found anywhere at any time. The form of genius that makes important contributions in many unrelated human intellectual activities is exceedingly rare. Al-Kindi was a spectacular and unique example. One characteristic of such persons is that they apply approaches that may have long-term time effects. This philosopher-savant provided approaches that are still useful 11 centuries after his death. His wide use of technology and its application to medicine anticipated the flood of technology that dominates medicine today. It is, therefore, appropriate to pay tribute to a Renaissance man who lived some 500 years before the European Renaissance.

I have provided a brief bibliography on al-Kindi. Interested readers may write to me for a more complete summary of references.

GENERAL REFERENCES

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